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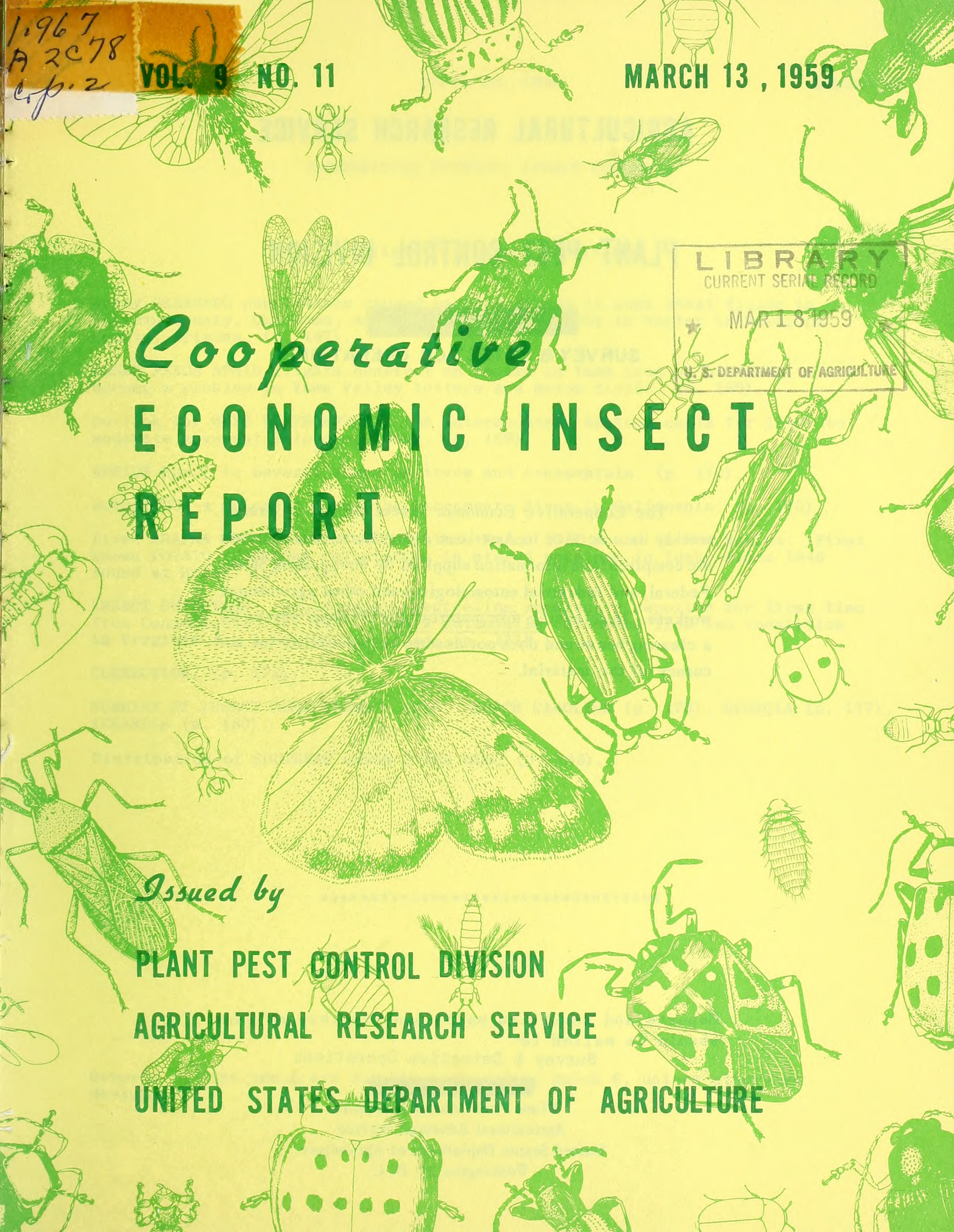

VOL. 9 NO. 11 MARCH 13, 1959

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY
SURVEY & DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 9 March 13, 1959 Number 11

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

Heavy GREENBUG populations caused serious damage in some wheat fields in Tillman County, Oklahoma, and CORN LEAF APHID heavy in barley in Maricopa County, Arizona. (p. 167).

GREEN PEACH APHID flights heaviest on record in Yuma area of Arizona. Could become a problem in Yuma Valley lettuce and melon fields. (p. 169).

Outlook for BEET LEAFHOPPER in the Intermountain Regions calls for light to moderate movement into crop areas. (p. 169).

APHIDS heavy in several areas on trees and ornamentals. (p. 170).

MOSQUITOES a nuisance along the Sacramento River in California. (p. 170).

First KHAPRA BEETLE infestations since March 1957 found in New Mexico. First known POTATO TUBERWORM infestation in stored potatoes in Idaho since 1946 found at Boise. (p. 171).

INSECT DETECTION: Centrinaspis penicellus apparently reported for first time from Connecticut. (p. 167). Musca autumnalis collected from two localities in Virginia for a new State record. (p. 171).

CORRECTION. (p. 172).

SUMMARY OF INSECT CONDITIONS - 1958 - NORTH CAROLINA (p. 173), GEORGIA (p. 177), ARKANSAS (p. 180).

Distribution of SOUTHERN GREEN STINK BUG. (p. 185).

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Reports in this issue are for the week ending March 6, unless otherwise designated.

WEATHER OF THE WEEK ENDING MARCH 9

Dust, drifting snow, damaging winds and heavy rains were features of the weather of the week, as a storm moved from the Far Southwest northeastward across the Great Lakes into Canada during the period March 4 to 7. Winds up to 60 mph on the 5th whipped up dust over the dry sections of western Nebraska, Kansas, Oklahoma and over most of Texas. The blowing dust damaged wheat in the plains area of the latter State. Snowfall ranged from 2 to 6 inches in the central Great Plains and up to 20 inches or more in portions of the upper Mississippi Valley and Great Lakes region. Drifts up to 4 feet in Kansas and up to 20 feet farther northeast blocked numerous highways, and thousands of cars, caught in the snow, were abandoned. More than 40 deaths, 20 in Iowa alone, were blamed on this snowstorm. Most deaths, as usual, resulted from traffic accidents, heart attacks and asphyxiation. This was reported to be the heaviest snowstorm in Wisconsin in many years. In the Northeast, heavy snowfall was limited mostly to northern Maine, but rains on frozen ground resulted in heavy runoff and some flooding in southern New England. The storm produced unusually heavy rains in a belt south of a line joining Cape Hatteras, North Carolina, and Pensacola, Florida, except in the Florida Peninsula where amounts were light. At Charleston, South Carolina, more than 6 inches of rain in 24 hours set a new March record.

Precipitation totals for the week were moderate to heavy in nearly all sections east of the Great Plains, and wet soil continued to delay fieldwork in much of the South. In most of the remainder of the Nation amounts were light with little or none in California and Nevada and adjacent areas of nearby states. More precipitation is needed from the southwestern Great Plains to southern California. Temperatures for the week, although near normal in most of the country, averaged 6° above normal in northern Maine, along the California coast, and in parts of North Dakota and Montana, and 3° below in the Rio Grande Valley and Southeast. Scattered frost occurred as far south as the Everglades of Florida on the 3rd, but caused little or no damage. Subzero minima were recorded at some mountain stations in the extreme Northeast and in parts of Michigan, Wisconsin and Minnesota. The snow cover at the end of the week had disappeared at most lower levels west of the Continental Divide and the pack in the Cascades and Sierras had decreased considerably. The Great Plains were bare except for a few inches near the Canadian Border. The cover is still substantial in northern and southern Minnesota and most of Iowa, Wisconsin and Michigan. More than a foot of snow covers most of Wisconsin, and depths still exceed 40 inches in northern Michigan. A storm left 2 to 4 inches of snow in the northern half of Indiana near the end of the period and Indianapolis reported a 4-inch depth on the morning of the 10th. Depths decreased in the Northeast. (Weather supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Heavy populations, up to 2,000 per linear foot, killed plants and caused serious damage in some wheat fields in eastern Tillman County. Parasitic wasps active in the area. (Hatfield). Populations more common in northwestern counties. Found in 16 of 23 small grain fields checked in 5 counties, with 0.2-30 per linear foot. (VanCleave, Hudson, Owens). TEXAS - Found in all but 3 of 25 panhandle and 3 rolling plains counties surveyed, February 15 to March 2. Populations generally low (less than one to 10 per foot), except in Parmer, Hutchinson, Hansford and Swisher Counties, where counts averaged 5-20 per foot. One field in Parmer County had spotted populations of 5-40 per foot. Predators generally scarce. (Daniels). Light to medium and attacking oats and barley in Kaufman County. (Davis).

APPLE GREEN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Found in 9 of 23 small grain fields checked in 5 northwest counties. Most counts averaged less than 10 per linear foot. Averaged over 500 per linear foot in one Kingfisher area field. (VanCleave, Hudson, Owens).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Averaged less than one per linear foot in two of 23 fields of small grains checked in 5 northwestern counties. (VanCleave, Hudson, Owens).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Attacked oats and barley in Rockwall and Kaufman Counties. (Davis). ARIZONA - Continued heavy in most barley fields in Maricopa County. Averaged over 50 per plant in 10 fields sampled between Peoria and Mesa. (Ariz. Coop. Sur.).

BROWN WHEAT MITE (Penthaleus major) - TEXAS - Populations found in Gray, Roberts and Ochiltree Counties, with 30-60 per foot in one field examined in Gray County. (Daniels).

WINTER GRAIN MITE (Petrobia latens) - OKLAHOMA - Found in 4 of 23 small grain fields checked in 5 northwestern counties. Averaged 75 per linear foot in one field, less than 10 per linear foot in 3 fields. (VanCleave, Hudson, Owens).

A LEAFHOPPER (Dikraneura carneola) - UTAH - Generally active on winter wheat and roadside grasses in Box Elder County. (Knowlton).

CUTWORMS - TEXAS - Small numbers noted in wheat in Rockwall County. (Davis). Few Chorizagrotis auxiliaris found in Dallam County. (Daniels).

EUROPEAN CORN BORER (Pyrausta nubilalis) - KANSAS - Populations ranged 2-73 borers per field in 13 fields surveyed in Jefferson County for winter mortality. (Burkhardt, Peters).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - KANSAS - One larva found in Jefferson County in fields sampled for European corn borer. (Burkhardt, Peters).

CURCULINOIDS - CONNECTICUT - Centrinaspis penicellus collected on corn at Mt. Carmel, August 2, 1958. From all available records, this appears to be the first record for the State. (Johnson). FLORIDA - All stages of Hyperodes delumbus collected on sweet corn in Palm Beach County. Approximately 50 percent of all corn fields are infested and infestations are close to 100 percent of all plants in infested fields. Serious damage occurred to plants 1-2 feet high. (Harris).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Averaged one per bud on all plants examined in a Pittsylvania County alfalfa field, February 18. (Reynolds). Also present in alfalfa in Halifax and Henry Counties (Morris)and in Roanoke County (Rowell). SOUTH CAROLINA - Larvae damaged alfalfa stands in Newberry County.

Some controls have been applied. (Nettles et al.). IDAHO - Adults active in fields near Rupert, Minidoka County. Soil temperature was 38°F. at time of observation. (Priest).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Averaged 288 per square foot of crown area in some Payne County alfalfa fields, a decrease from the 720 per square foot reported last week. (Ketner). None found in 2 Caddo County alfalfa fields checked. (Hudson). TEXAS - Medium to heavy widespread infestations in Delta and Rockwall Counties. (Davis). NEW MEXICO - Many fields heavily infested in northern Dona Ana County. Only an occasional specimen found in southern areas of county. (N. M. Coop. Rpt.).

PEA APHID (Macrosiphum pisi) - TEXAS - Small numbers observed on vetch in Rockwall and Kaufman Counties. (Davis). CALIFORNIA - Light on alfalfa in the Redding area, Shasta County. (Cal. Coop. Rpt.). NEW MEXICO - Remained light in Dona Ana and Sierra Counties. Moderate on 400 acres of fall-seeded alfalfa in De Baca County. Some growers treating. (N. M. Coop. Rpt.).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Averaged 1-2 per square foot in alfalfa fields in northern Dona Ana County. (N. M. Coop. Rpt.).

LYGUS BUGS (Lygus spp.) - TEXAS - Caused concern on alfalfa in Rockwall County. (Davis).

THRIPS - NEW MEXICO - Very abundant in alfalfa fields in southern counties. (N. M. Coop. Rpt.).

FRUIT INSECTS

CLIMBING CUTWORMS - UTAH - Some activity about apricot trees near Willard, Box Elder County. (Knowlton).

SCALE INSECTS - ARIZONA - Icerya purchasi observed on citrus near Mesa, Maricopa County. (Ariz. Coop. Sur.). CALIFORNIA - Aonidiella citrina heavy and Coccus pseudomagnoliarum medium on citrus locally in Placer County. Aonidiella aurantii light on fig at Willows, Glenn County. (Cal. Coop. Rpt.).

AN AVOCADO MITE (Oligonychus punicae) - CALIFORNIA - Medium on avocado trees in Baldwin Park area of Los Angeles County. (Johnson).

A WHITEFLY (Trialeurodes ruborum) - CALIFORNIA - Heavy on blackberry vines in Wasco, Kern County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

DIAMONDBACK MOTH (Plutella maculipennis) - GEORGIA - Light on cabbage in Colquitt County. (Johnson).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light on cabbage in Colquitt County. (Johnson).

CUTWORMS - NEW MEXICO - Caused considerable damage to one lettuce field in Dona Ana County. (N. M. Coop. Rpt.).

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Light but increasing in some lettuce fields in Maricopa County. In Yuma area, flights were reported to be heaviest on record, with aphids so numerous they were visible in the sky as they were blown on wind currents. As a carrier of virus diseases, they could be a problem in lettuce and melon fields in the Yuma Valley. (Ariz. Coop. Sur.).

A SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata tenella*) - NEW MEXICO - Caused minor damage to lettuce in Dona Ana County. (N. M. Coop. Rpt.).

THRIPS - NEW MEXICO - Caused some damage to outer leaves of lettuce plants and averaged 1-2 per onion plant in Dona Ana County. (N. M. Coop. Rpt.).

TULIP APHID (*Anuraphis tulipae*) - ARIZONA - Present on carrots in a few fields in the Salt River Valley. Treatment necessary in some cases with fair control being obtained. (Ariz. Coop. Sur., Feb. 13).

SEED-CORN MAGGOT (*Hylemya cilicurura*) - WASHINGTON - Adults have been flying all winter, with peak of brood about December 30, 1958. Many fresh gravid females present in February. Sticky-stake catches, per 50 stakes, in onion fields in Walla Walla area were 524 on December 30, 1958; 133 on January 13; 266 on February 10; and 144 on February 24. (Woodworth).

Beet Leafhopper Conditions in Utah, Western Colorado, Southern Nevada, Southeastern California and Central Arizona - 1959

The beet leafhopper spring movement from the southern desert breeding grounds to the cultivated districts of central Arizona and southeastern California is expected to be light. The movement to southern Nevada and southern Utah is expected to be light to moderate. The movement to south central Utah is expected to be light to moderate. The movement to northern Utah and western Colorado is expected to be light. The local movement from the breeding ground of northern Utah and western Colorado to the adjacent cultivated districts of northern Utah and western Colorado is expected to be light.

This statement is based upon present conditions. The movement of the leafhopper into the cultivated districts of southern Nevada and southern Utah is expected to start by late March to early April. The movement to central Utah and western Colorado is expected to start by late April and will reach its peak by mid-May. The local movement to northern Utah and western Colorado is expected to start by late May and reach its peak in mid-June. The abundance of the population engaged in these movements will depend to some degree upon unpredictable weather fluctuations during the next two months. However, as a result of experience in previous seasons, conditions as observed in 1959 are similar to 1948 and have been associated with a light to moderate movement of leafhoppers to the cultivated districts. A later statement will be issued on beet leafhopper conditions based on additional information obtained from field studies now in progress.

The distant southern breeding ground estimated to encompass some 50,000 square miles was studied in mid-February, 1959, in cooperation with State and Federal officials. Host plants were found to be present in 10 percent of the 370 ten-mile sampling points in the entire southern breeding grounds in 1959 in comparison to 70 percent in 1958, 14 percent in 1957, 3 percent in 1956, 36 percent in 1955, 48 percent in 1952 and 18 percent in 1948. The average leafhopper population in the approximately 5,000 square miles studied where plants were present averaged 0.05 per square foot of weed host as compared with 0.66 in 1958, 0.22 in 1952 and 0.12 per square foot in 1948. Beet leafhoppers collected from various annual host plants in the southern breeding grounds in mid-February, 1959, showed about 3 percent to be viruliferous or capable of transmitting the virus that causes curly top disease. This is in comparison with 7 percent in 1958, 6 percent in 1957, 10 percent in 1956, 20 percent in 1955, 10 percent in 1952 and 4 percent in 1948. The percentage of viruliferous beet leafhoppers that overwintered in 1959 in northern Utah has not yet been determined.

On the basis of the acreage of host plants, the beet leafhopper population and the percentage of the insects that are infective, it is estimated 0.2 billion infective leafhoppers were present in the southern breeding grounds during the February study. By comparison, the population in 1958 was estimated at 45.0 billion, 1957 at 0.16 billion, 1956 at 0.004 billion, 1955 at 0.85 billion and 1952 at 7.2 billion. (Dorst, Knowlton).

TOBACCO INSECTS

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - GEORGIA - Light on tobacco plant beds in Tift, Berrien, Cook, Colquitt, Grady, Thomas and Worth Counties. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE MOTH (*Rhyacionia frustrana*) - SOUTH CAROLINA - Field inspections February 26 showed scattered adult emergence. Most still in pupal state. (Nettles et al.).

PINE TUBE MOTH (*Argyrotaenia pinatubana*) - DELAWARE - Pupae rather numerous on white pine north of Smyrna, New Castle County. (Burbutis, Conrad).

PINE REPRODUCTION WEEVILS - SOUTH CAROLINA - No adults were discovered, but fresh feeding evidence was found. Field evidence shows that emergence from hibernation has begun. (Nettles et al.).

PINE SAWFLIES (*Neodiprion* spp.) - VIRGINIA - Egg survey indicates presence over a wider area than in 1957 and may be particularly heavy in central and south central counties. (Va. Pine Sawfly Cont. Comm.).

APHIDS - SOUTH CAROLINA - Widespread, heavy population of a pine aphid in Clemson area, especially on shortleaf and loblolly pines. Twig mortality not uncommon and injury is increasing. (Nettles et al.). CALIFORNIA - *Thoracaphis umbellulariae* heavy and damaged California bay trees in San Mateo, San Mateo County. (Cal. Coop. Rpt.). NEW MEXICO - Building up on roses, arborvitae and other ornamentals in southern areas. (N. M. Coop. Rpt.).

SCALE INSECTS - NORTH CAROLINA - *Pseudaulacaspis pentagona* infesting mulberry in Halifax County. (Scott, Farrier). ARIZONA - *Icerya purchasi* observed on ornamental pittosporum in the Yuma Valley. (Ariz. Coop. Sur.). CALIFORNIA - *Aonidiella citrina* heavy on privet in Penryn, Placer County. *Aspidiotus perniciosus* medium on cotoneaster in the Arvin area, Kern County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - CALIFORNIA - Great numbers coming out of hibernation after heavy rains followed by unseasonably warm weather and creating considerable nuisance to residents in cities along Sacramento River. (Cal. Coop. Rpt.).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - NEW MEXICO - Two properties at Truth or Consequences, Sierra County, found infested. These are first infestations in the State since March, 1957. (N. M. Coop. Rpt.).

POTATO TUBERWORM (Gnorimoschema operculella) - IDAHO - Causing heavy damage to potatoes in storage in Boise. All stages present. This is first known case of infestation in potatoes in State since eradication of an introduced infestation in 1946. (Manis).

PINK SCAVENGER CATERPILLAR (Pyroderces rileyi) - ARIZONA - Found infesting some grain sorghum coming into Phoenix for storage. (Ariz. Coop. Sur.).

Stored-grain Insects in Texas - RICE WEEVIL (Sitophilus oryza), FLAT GRAIN BEETLE (Laemophloeus pusillus), CONFUSED FLOUR BEETLE (Tribolium confusum) and SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) infesting store grain sorghum in Karnes County. Insects appeared on top two feet of grain, being heaviest where grain was piled highest. Laemophloeus pusillus light in milo in Lubbock County. (Texas Coop. Rpt.). A FLOUR BEETLE caused concern in elevators in Parmer and Castro Counties. (Russell).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - TEXAS - Brood rearing increased greatly from early blooms in the Winter Garden area. Colonies came through winter in fine condition, but have used up more stores than usual. (Harding).

PREDATORS - OKLAHOMA - Few active Hippodamia convergens found in a small number of small grain fields checked in 5 northwestern counties. Nabis sp. and lacewings present in very limited numbers in same area. (VanCleave, Hudson, Owens). NEW MEXICO - Coccinellid adults averaged 4 per square foot in fields in southern Dona Ana County, very few larvae and pupae. In northern part of county where spotted alfalfa aphid infestations were heavy, very few adults were present but larvae averaged 2-10 per square foot in many fields. (N. M. Coop. Rpt.)

MISCELLANEOUS INSECTS

STINK BUGS - ARIZONA - Chlorochroa sayi and Thyanta custator increased on globemallow in the desert bordering cultivated areas in Maricopa County. (Ariz. Coop. Sur.).

A MUSCID (Musca autumnalis) - VIRGINIA - Specimens collected from 2 localities in Loudoun County during December, 1958, and February, 1959. Previously not reported in the United States outside of the State of New York. Det. C.W. Sabrosky. (Morris).

BROWN-BANDED ROACH (Supella supellectilium) - WYOMING - Collected in housing at Laramie, Albany County. (Davison).

TERMITES - MARYLAND - Winged forms of Reticulitermes flavipes noted in homes at Cambridge, Dorchester County, and at Silver Spring, Montgomery County. (U. Md., Ent. Dept.). WYOMING - Caused extensive damage to a house in Douglas, Converse County, and to a house in Wheatland, Platte County. (Davison). KANSAS - First swarm of R. flavipes of season reported at a house in Riley County. (Knutson).

CORRECTION

CEIR 9(9):138 - Under Forest, Ornamental and Shade Tree Insects, COTTONY MAPLE SCALE (*Pulvinaria vitis*) should be changed to read COTTONY MAPLE SCALE (*Pulvinaria innumerabilis*).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Feltia subt.
ARIZONA					
Mesa 2/26-3/4			31	7	
FLORIDA					
Gainesville 2/24-3/2					1
Key West 2/1-28					19
Monticello 2/25-3/3	1				2
Quincy 2/24-3/2	1				
SOUTH CAROLINA					
Charleston 3/2-8	1				
Clemson 2/28-3/6		1	1	3	

SUMMARY OF INSECT CONDITIONS - 1958

NORTH CAROLINA

Prepared by M. H Farrier*

Highlights: Flue-cured tobacco growers lost an average of $5.48 per acre due to HORNWORMS and BUDWORMS (*Heliothis* spp.) in 1958. Feeding by larvae and adults of ALFALFA WEEVIL on ladino clover was much heavier than in past years. An adult of the CHINCH BUG was first taken in Wake County on April 24. During late May and early July, 1958, spotty infestations of CHINCH BUGS were mostly limited to the Coastal Plain. *Blissus leucopterus insularis* was taken in New Hanover County in August but *Blissus leucopterus* was identified from Craven County in June. This suggests the northern limit of *B. l. insularis* was between these two coastal counties. Injury by EUROPEAN CORN BORER was more widespread in 1958. In Pasquotank County, and about 50 percent of the larvae pupated by April 21 and emergence was 70 percent complete May 13. At Raleigh adults first emerged May 1. In late May, larvae infested potato vines from northeastern coastal counties to Carteret County, where pupation first was noted on June 4. Inland, European corn borer attacked wheat, corn , peanuts and sweet corn, usually in limited numbers and localities, but a few corn fields in Surry County had as high as 3-4 borers per stalk in early July. CUTWORMS were more widespread in 1958. Over 100 acres of corn and burley tobacco were destroyed in Cherokee and Macon Counties by the BLACK CUTWORM in early June and VARIEGATED CUTWORM caused a 40 percent loss of cabbage heads in Carteret County. ARMYWORM was injurious in most northern Coastal Plain counties and in some Piedmont counties. Infestations of YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) was limited to the Piedmont and Mountains. A survey including 1,988 head of cattle indicated a generally moderate to very severe infestation of CATTLE GRUBS (*Hypoderma* spp.) in the western mountainous areas. Only local light to moderate infestations were found in the Piedmont and even less in the Coastal Plain. A MIRID (*Spanogonicus albofasciatus*) destroyed many lawns in Faison in late August. Other locally severe or unusual infestations were the LESPEDEZA WEBWORM on sericea lespedeza, GARDEN FLEAHOPPER on sweetpotato, BALSAM WOOLLY APHID (*Chermes piceae*) on Fraser fir and an ERIOPHYID MITE (*Vasates magnolivora*) discoloring magnolia leaves. Unusually large numbers of MILLIPEDES invaded homes in 1958.

New Records of Economically Important Insects: In May, a SAWFLY (*Neodiprion pratti pratti*) defoliated over 5,000 acres of pine, principally Virginia pine, in northern Granville, western Vance and eastern Person Counties. Spotty defoliation occurred westward to Guilford County and south into Wake County. In early November, adults were flying at the heaviest spring infestation site in Granville County; however, oviposition was not heavy on small trees previously defoliated. IMPORTED FIRE ANT (*Solenopsis saevissima* v. *richteri*) appeared in local areas in Onslow and Robeson Counties and eradication was immediately attempted by State and Federal authorities. EUROPEAN CORN BORER (*Pyrausta nubilalis*) was taken from corn in Johnston and Scotland Counties for the first time. ALFALFA WEEVIL (*Hypera postica*) reached the western boundary of the State with 8 newly infested counties. ELM SPANWORM (*Ennomos subsignarius*) defoliated a number of hardwoods in Cherokee County.

Cereal and Forage Crops: The first POTATO LEAFHOPPER (*Empoasca fabae*) collection for the year was made in Iredell County on May 15 with other species of *Empoasca*. Feeding injury by ALFALFA WEEVIL (*Hypera postica*) was seen on alfalfa in late January in Wake County and larvae were half grown in Richmond and Montgomery Counties on March 5. Untreated alfalfa fields in severely infested areas had a loss of first cutting and delayed the second cutting. Two treatments were necessary in the southern area. Other pests of alfalfa included CLOVER ROOT CURCULIO (*Sitona hispidula*), grubs of GREEN JUNE BEETLE (*Cotinis nitida*) and PEA APHID (*Macrosiphum pisi*). ALFALFA WEEVIL larvae caused moderate foliage loss to ladino clover in Gates and Richmond Counties and adults severely damaged margins of fields in Iredell County when they migrated from alfalfa fields. Associated with ALFALFA WEEVIL on ladino clover, were CLOVER LEAF WEEVIL (*Hypera punctata*) and a CLOVER WEEVIL (*Hypera meles*). Corn was replanted in some western counties due to injury by BLACK CUTWORM (*Agrotis ypsilon*) and in some southeastern fields due to SUGARCANE BEETLE (*Euetheola rugiceps*). Injury to corn by SOUTHERN CORNSTALK BORER (*Diatraea crambidoides*) was limited to the Coastal Plain. A maximum stalk infestation of 15 percent was observed but most were only 1 or 2 percent. CHINCH BUG (*Blissus leucopterus*) infestations of corn were principally in the Coastal Plain or eastern Piedmont. BILLBUGS (*Calendra* spp.) caused injury in the Coastal Plain in almost every corn field, though severe injury was more limited. CORN EARWORM (*Heliothis zea*) was more general and injurious in whorls of corn than the past several years, but infestations were usually from 1-5 percent of the plants. EUROPEAN CORN BORER (*Pyrausta nubilalis*), ARMYWORM (*Pseudaletia unipuncta*) and FALL ARMYWORM (*Laphygma frugiperda*) also attacked field corn. One hundred acres of sericea lespedeza in Hoke County were injured, some severely, by LESPEDEZA WEBWORM (*Tetralopha scortealis*). Larvae of GREEN JUNE BEETLE (*Cotinis nitida*) completely destroyed large areas of a newly seeded pasture in Union County. Foliar feeders of soybeans included JAPANESE BEETLE (*Popillia japonica*), MEXICAN BEAN BEETLE (*Epilachna varivestis*), ARMYWORM, GREEN CLOVERWORM (*Plathypena scabra*) and BEAN LEAF BEETLE (*Cerotoma trifurcata*). All caused moderate or less injury in different locales. Peanuts throughout the Coastal Plain were moderately injured by a LEAFHOPPER (*Empoasca* sp., prob. *fabae*) in August. TOBACCO THRIPS (*Frankliniella fusca*) was not the problem of past years. Some injury to peanuts by EUROPEAN CORN BORER and CORN EARWORM was reported.

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*Summarizing over 800 reports of more than 150 individuals, representing over 24 Federal, State and private agencies who submitted specimens or data regarding 276 species of the 11,000 arthropods known to be in North Carolina. The aid of Miss Phyllis Pake in preparation of specimens and compilation of data is gratefully acknowledged.

Fruit Insects: SCARABS (*Phyllophaga* spp.) caused local defoliation of fruit trees in Cleveland and McDowell Counties. EUROPEAN RED MITE (*Panonychus ulmi*) was general on apples in the western area in early August. APPLE APHID (*Aphis pomi*), WOOLLY APPLE APHID (*Eriosoma lanigerum*), an APHID (prob. *Anuraphis roseus*), SHOT-HOLE BORER (*Scolytus rugulosus*) and LEAF CRUMPLER (*Acrobasis indiginella*) were all reported from apple. SOFT SCALES (*Pseudococcus* sp. and undet. sp.) infested blueberries in the Coastal Plain. A ROUND-HEADED WOOD BORER (*Oberea myops*) bored in blueberry stems in Watauga County. Figs were infested by a SCALE (*Aspidiotus lataniae*) and a STINK BUG (*Euthyrhynchus floridanus*). GRAPE FLEA BEETLE (*Altica chalybea*) was widespread on grapes in the Coastal Plain and injury was light to moderate. Other pests of grape included GRAPE LEAF SKELETONIZER (*Harrisina americana*), a SCARAB (*Anomala nigropicta*), GRAPE LEAF FOLDER (*Desmia funeralis*), GRAPE ROOT BORER (*Vitacea polistiformis*) and a MIDGE. PLUM CURCULIO (*Conotrachelus nenuphar*) was abundant in unsprayed peach orchards in the Sandhills area on May 9. The first "wormy" drops fell on May 13. Adults of the summer generation were emerging the week of June 27 and adults were more abundant in 1958 than in the past several years. Pre-harvest sprays were important. Home orchards in northeastern counties were heavily infested in late May. WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) was reported many times on hosts other than peach. It was particularly widespread in the southern Piedmont. Local pests of pecans included PECAN NUT CASEBEARER (*Acrobasis caryae*), PECAN CARPENTERWORM (*Cossula magnifica*), PECAN WEEVIL (*Curculio caryae*), TWIG GIRDLER (*Oncideres cingulata*), PECAN LEAF CASEBEARER (*Acrobasis juglandis*), a PHYLLOXERA (*Phylloxera* sp.) and a SCARAB (*Phyllophaga* sp.).

Truck Crop Insects: Beans were not as severely attacked by MEXICAN BEAN BEETLE (*Epilachna varivestis*) as in 1957. Highest foliage loss was only 5 percent. BEAN LEAF BEETLE (*Cerotoma trifurcata*) was worse in 1958 than the past five years in Coastal Plain counties, with leaf losses up to 10 percent in local areas. CORN EARWORM (*Heliothis zea*) damage caused rejection of some lots of wax beans in Chowan County. SPIDER MITES (*Tetranychus* spp.) were more general on beans than in 1957. Fifteen to 20 percent of experimental broccoli was a loss due to CABBAGE MAGGOT (*Hylemya brassicae*) in Henderson County. Late season broccoli plantings in Wake County were severely attacked by IMPORTED CABBAGEWORM (*Pieris rapae*). DIAMONDBACK MOTH (*Plutella maculipennis*) was the principal pest of cabbage in late May in the Coastal Plain. In July, reports of CABBAGE LOOPER (*Trichoplusia ni*) became more numerous. VARIEGATED CUTWORM (*Peridroma margaritosa*) caused 40 percent loss of 75 acres of cabbage in Carteret County in May. Ripening canteloups were injured in New Hanover County by MILLIPEDES. First adult HARLEQUIN BUG (*Murgantia histrionica*) appeared week of May 16 in Duplin County. Untreated collard plants averaged over 1 adult and numerous nymphs per plant in Duplin County in early September. On April 20, first adults of STRIPED CUCUMBER BEETLE (*Acalymma vittata*) were seen in Wake County and by mid-May destructive numbers were present on cucumbers in Duplin County. SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*), TOOTHED FLEA BEETLE (*Chaetocnema denticulata*) and SWEETPOTATO FLEA BEETLE (*Chaetocnema confinis*) were pests of cucumbers in Duplin County. EGGPLANT FLEA BEETLE (*Epitrix fuscula*) caused severe injury to some young eggplant in Duplin County. Injury to eggplant by TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) also was noted. ONION MAGGOT (*Hylemya antiqua*) caused up to 30 percent loss in some onion fields in the southern Coastal Plain. Feeding by a MIRID (*Alydus pilosus*) wilted tips of field peas locally in southeastern counties.

Potato vines in coastal commercial production areas were mined by EUROPEAN CORN BORER (*Pyrausta nubilalis*) and STALK BORER (*Papaipema nebris*). Highest infestations by EUROPEAN CORN BORER in potatoes approached 5 percent of the vines in 1958. Secondary invasion by fungi was important in causing additional loss. Feeding of COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) was first noted in Duplin County during the week of April 25 and in Granville County on May 13. Complete destruction of 30 percent of untreated potato plants occurred at a site in Duplin County and remaining plants were stunted. Complete losses of home plantings were not uncommon in the eastern part of the State. POTATO FLEA BEETLE (*Epitrix cucumeris*) was numerous on potatoes in Pasquotank County. PICKLEWORM (*Diaphania nitidalis*) occurred locally in squash in Martin County. Complaints of SAP BEETLES feeding on sweet corn were more widespread than in past years. CORN FLEA BEETLE (*Chaetocnema pulicaria*), EUROPEAN CORN BORER and a BILLBUG (*Calendra* sp.) were locally severe in the Coastal Plain. JAPANESE BEETLE (*Popillia japonica*) fed so severely on sweet corn silks maturing in late August at Faison that kernel set was reduced over 50 percent per ear. GARDEN FLEAHOPPER (*Halticus bracteatus*) ranged 2-6 per leaf on untreated sweetpotatoes in Johnston County in October. Tomatoes were plagued by TOMATO HORNWORM (*Protoparce quinquemaculata*), TOMATO FRUITWORM (*Heliothis zea*), STALK BORER (*Papaipema nebris*) and FLEA BEETLES. Local severe infestations of adults and larvae of a STRAWBERRY ROOTWORM (*Paria* sp.) and larvae of GREEN JUNE BEETLE (*Cotinis nitida*) were reported on strawberries. SOWBUGS (undet. spp.) and a SAP BEETLE (*Glischrochilus quadrisignatus*) invaded ripe fruit.

Tobacco Insects: Flue-cured tobacco growers lost an average of $5.48 per acre due to HORNWORMS (*Protoparce* spp.) and BUDWORMS (*Heliothis* spp.) in 1958; but, even more important was the number of fields with little or no injury.

Percent of samples of tobacco growers' fields examined in North Carolina which had no injury by hornworms or budworms in 1958

Portion of plant examined	Number of fields examined	Fields not injured by hornworms	Fields not injured by budworms
Lower 9 leaves (1st Brood)	121	55%	16%
Upper 9 leaves (2nd Brood)	179	25%	34%

An average of $3.02 was the estimated loss of burley tobacco due to HORNWORMS and BUDWORMS. Distinct differences in losses of flue-cured tobacco caused by first and second-brood HORNWORMS (early and late season losses to BUDWORMS) indicate erroneous conclusions could be made, if these losses were totaled for the season. Losses caused by HORNWORMS also had wider variations than did losses caused by BUDWORMS. Heaviest losses were caused by second-brood HORNWORMS in Davidson, Iredell and Randolph Counties. Heaviest losses caused by BUDWORMS were in late season in Carteret, Onslow and Pamlico Counties; the other end of the flue-cured tobacco production area. Losses caused by first-brood HORNWORMS and early-season BUDWORMS were more uniform over the area than those of the second-brood HORNWORMS and late-season BUDWORMS.

Injury by TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) was most important at the time of transplanting, especially if controls were not used on plant beds prior to transplanting. A WIREWORM (*Conoderus* sp., prob. *vespertinus*) injured up to 70 percent of the plants in fields of heaviest infestation in Wake and Wilson Counties. Other tobacco foliage pests included JAPANESE BEETLE (*Popillia japonica*), VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) and COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) larvae.

Cotton Insects: Overwintered BOLL WEEVILS (*Anthonomus grandis*) appeared in cotton fields during week of May 16 in Scotland County. Few adults were present in early June, but by early August numbers were increasing rapidly in the south central area. Local severe outbreaks of BOLLWORMS (*Heliothis* spp., et al.) resulted in defoliation of some fields in early July. In early August, outbreaks did not occur in spite of much moth activity and oviposition on cotton. Some limited early-season injury was caused by GARDEN SPRINGTAIL (*Bourletiella hortensis*), COTTON APHID (*Aphis gossypii*), TOBACCO THRIPS (*Frankliniella fusca*) and other pests.

Forest, Shade Tree and Ornamental Insects: Adults of JAPANESE BEETLE (*Popillia japonica*) were emerging prior to June 13 in southeastern areas. By July 18, adult populations were decreasing in most eastern areas and reached a peak in the western areas. As a group, SCARABS came to attention more often on ornamentals in 1958 than in previous years. BALSAM WOOLLY APHID (*Chermes piceae*) caused some mortality in 1,400 acres of Fraser fir atop Mt. Mitchell. A SPITTLEBUG (*Tomaspis bicincta*) was very abundant in 1958 and caused tips of holly, particularly, to wilt. In addition to the defoliation of pine by a SAWFLY (*Neodiprion pratti pratti*), SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) caused spotty kills in the eastern quarter of Tyrrell County and northwest corner of Hyde County.

Insects Affecting Man and Animals: No infestations of SCREW-WORM (*Callitroga hominivorax*) were known in the State in 1958. CATTLE GRUBS (*Hypoderma* spp.) (see Highlights). Larvae determined to be COMMON CATTLE GRUB (*Hypoderma lineatum*) were collected in Mitchell County in April. On April 22, cattle were first noticed running from heel flies in Ashe County. Thirty-four infestations of DOG FOLLICLE MITE (*Demodex canis*) were reported to the State veterinarian in 1958 as were also 3 cases of tick paralysis of dogs. An unusual outbreak of an ANT (*Formica integra*) occurred around a marsh in Duplin County. Hogs avoided usual resting places and watering sites. Neither mules nor man could stand long in the area adjacent to the marsh. Apparently the outbreak was caused by recent bulldozing of the area around the marsh, which resulted in abundant soil contact with piles of wood in which the ants tunneled. A MOTH FLY bit some hogs in Northampton County until their eyes had swollen shut. Larvae of SALT-MARSH MOSQUITO (*Aedes sollicitans*) first appeared in early April in Brunswick, New Hanover, Onslow and Pender Counties. By mid-May, severe infestations had been reported along the entire coast. With minor fluctuations, populations decreased rapidly in late June and remained low until mid-August when increases were again noticed in limited areas. By late September, adult biting counts were as high as 200 per minute. In October, they again decreased, but by late October 63-100 adults were landing per minute at near 70-degree temperatures. Reports of

WHEEL BUG (*Arilus cristatus*) were more numerous than in past years. A severe outbreak of a MOSQUITO (*Aedes sticticus*) followed flooding of the Roanoke River in early May. Local infestations of BED BUG (*Cimex lectularius*) were reported.

Household Pests: The usual assortment of pests in households came to attention. Three CARPET BEETLES were identified, *Attagenus piceus*, *Anthrenus verbasci* and *Anthrenus flavipes*. Pantry pests include INDIAN-MEAL MOTH (*Plodia interpunctella*), DARK MEALWORM (*Tenebrio obscurus*), SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) and MEDITERRANEAN FLOUR MOTH (*Anagasta kuhniella*). CLOTHES MOTHS include *Tinea pellionella* and *Tineola bisselliella*. GERMAN COCKROACH (*Blattella germanica*), ORIENTAL COCKROACH (*Blatta orientalis*) and BROWN-BANDED ROACH (*Supella supellectilium*) were identified from homes. Pests of animals in the home were BROWN DOG TICK (*Rhipicephalus sanguineus*) and NORTHERN FOWL MITE (*Ornithonyssus sylviarum*). Five species of ANTS (*Crematogaster* sp., *Acanthomyops* sp., *Camponotus herculeanus pennsylvanicus*, *Lasius alienus americanus* and *Monomorium pharaonis*) were identified from homes. Invaders were CLOVER MITE, MILLIPEDES, BOXELDER BUG (*Leptocoris trivittatus*), GIANT HORNET (*Vespa crabro germana*) and a FLANNEL MOTH (*Norape cretata*).

Structural Pests: Earliest flight of TERMITES reported in 1958 was on February 7 in Forsyth County. Reports were received through May, and all that were received for determination were EASTERN SUBTERRANEAN TERMITE (*Reticulitermes flavipes*), except one, which was *Reticulitermes virginicus*. SOUTHERN LYCTUS BEETLE (*Lyctus planicollis*) was reported from hardwoods in structures and OLD HOUSE BORER (*Hylotrupes bajulus*) from structural pine. Adults of SOUTHERN PINE SAWYER (*Monochamus titillator*) emerged through sheetrock panels after being incorporated into houses while larvae.

Beneficial Insects: Loss of some HONEY BEE (*Apis mellifera*) colonies in beeyards occurred in western counties due to starvation last winter.

Miscellaneous Pests: Only one infestation of an EARTHWORM MITE (*Fuscuropoda agitans*) was reported from earthworm beds last year.

SUMMARY OF INSECT CONDITIONS - 1958

GEORGIA

Prepared by W. C. Johnson*

Highlights: ALFALFA WEEVIL was found infesting alfalfa in Lincoln County in late April and in 22 northeast and northwest counties later in the season. A BILLBUG caused heavy damage to young corn throughout southern areas. THRIPS infestations were heavy on peanuts in early season. ARMYWORM was heavy on coastal Bermuda and Bahia grass and millet during late August in the north. CORN EARWORM was moderate to heavy in corn whorls throughout southern areas. CABBAGE APHID was moderate to heavy on cole crops. MEXICAN BEAN BEETLE was serious on lima, pole and snap beans. PLUM CURCULIO was heaviest since 1947. PECAN BUD MOTH was locally heavy in Decatur County. FALL WEBWORM was heavy on pecan trees in southern areas. EUROPEAN RED MITE and TWO-SPOTTED SPIDER MITE were general and heavy on apples. TOBACCO BUDWORM was moderate until late season, then became heavy. BOLLWORM infestations were found in mid-May before cotton had squared. Much feeding on terminal buds occurred. Infestations were generally heavy. Egg counts reached a high of 212 per 100 terminals and larvae 87 per 100 terminals. BOLL WEEVIL infestations were light to moderate until about July 1. Heavy and frequent rains contributed to heavy infestations for the remainder of the season. ELM SPANWORM was heavy on hardwood in northern counties. Large numbers of moths were observed in the Athens-Gainesville area. NANTUCKET PINE MOTH was heavy and is now infesting slash pine as well as other pines. EASTERN TENT CATERPILLAR on wild cherry and persimmon in the south, CHINCH BUG on St. Augustine and centipedegrass and MIMOSA WEBWORM on mimosa trees were all heavy. SCREW-WORM infestations occurred only in Brooks and Camden Counties.

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*With assistance from entomologists from research, teaching and Extension of the University of Georgia; U.S.D.A.; Georgia Department of Entomology and other agencies.

Cereal and Forage Insects: ALFALFA WEEVIL (Hypera postica) was found in Lincoln County April 26. This was the first record for the State and has since been reported from 22 counties. The area infested ranges from Stephens to Johnson Counties in a north-south direction and Lincoln to Spalding Counties from east to west. Most fields had light to moderate infestations with some being heavily infested. SPOTTED ALFALFA APHID (Therioaphis maculata) was generally light; however, one field of seedling alfalfa was destroyed in Lamar County during the fall. LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) was moderate to heavy on crimson clover. Some farmers producing seed stopped harvest because of poor seed yield. A CLOVER WEEVIL (Hypera meles) also caused much damage to the crimson clover seed crop. CORN EARWORM (Heliothis zea) was heavy in whorls of corn just before tasseling. Damage to corn in the field during 1958 was 4.3 percent compared with 3.89 percent in 1957. Infestations were moderate to heavy on sweet corn and light to moderate on peanuts. FALL ARMYWORM (Laphygma frugiperda) was light to moderate in the whorls of corn and light to heavy on grain sorghum throughout the State. A BILLBUG (Calendra callosa) was light to heavy on corn and general in southern counties. Some fields were destroyed even after the third planting. EUROPEAN CORN BORER (Pyrausta nubilalis) was reported for the first time in Carroll, Forsyth, Fulton, Gordon, Haralson and Meriwether Counties. ARMYWORM (Pseudaletia unipuncta) was heavy on millet, coastal Bermuda and Bahia grass in several northern counties. MEXICAN BEAN BEETLE (Epilachna varivestis) was light to heavy, CABBAGE LOOPER (Trichoplusia ni) light to moderate and VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) moderate on soybeans. SORGHUM WEBWORM (Celama sorghiella) was light to moderate on grain sorghum. A SPITTLEBUG (Tomaspis bicincta) caused moderate damage to fields of coastal Bermuda grass in several southern counties. THRIPS were heavy in early season on peanuts. Light to moderate infestations of RED-NECKED PEANUTWORM (Stegasta basqueella) occurred over the entire peanut area. A BURROWING BUG (Pangaeus sp.) was light to medium on peanuts in several southern counties. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations of field peas reached 20 percent during mid-August. There was a gradual increase of the infestation from one-half (0.5) percent in early June.

Fruit and Nut Insects: PLUM CURCULIO (Conotrachelus nenuphar) was the heaviest since 1947. However, enforcement of control measures resulted in generally good control throughout the season. One packing shed reported a good many "wormy" peaches from one orchard. The hibernating-adult population in the peach belt in the winter of 1958-59 is heavier than that of an average year. PEACH TREE BORER (Sanninoidea exitiosa) is heavy in many orchards in the same area and much damage to peach trees has been caused. ORIENTAL FRUIT MOTH (Grapholitha molesta) was much more abundant than usual. An unusually late peach harvest contributed to a buildup in the infestation, with Sullivan's and regular Elberta varieties suffering most. LESSER PEACH TREE BORER (Synanthedon pictipes) continued heavy in a number of orchards, especially where there are winter injured trees or in neglected orchards. SHOT-HOLE BORER (Scolytus rugulosus) is heavy in devitalized, weak or diseased trees and in neglected orchards. STINK BUGS and CATFACING INSECTS were of only average abundance. SAN JOSE SCALE (Aspidiotus perniciosus) was heavier than usual. EASTERN TENT CATERPILLAR (Malacosoma americanum) nests were observed in forks of limbs of wild cherry as early as April 16 at Fort Valley. The infestation was very heavy and some wild cherry trees were practically defoliated by April 29. FALL WEBWORM (Hyphantria cunea) was much heavier on pecan than usual and caused considerable concern to growers. Larval nests with full-grown larvae were numerous by June 15.

EUROPEAN RED MITE (*Panonychus ulmi*) and other SPIDER MITES (*Tetranychus* spp.) were heavy and general on apples. CODLING MOTH (*Carpocapsa pomonella*) infestations were light on apples. A local heavy infestation of PECAN BUD MOTH (*Gretchena bolliana*) occurred in Decatur County. HICKORY SHUCKWORM (*Laspeyresia caryana*) caused serious damage to the pecan crop. PECAN WEEVIL (*Curculio caryae*) infestations were light and not as important as in some years. MITES and APHIDS were not troublesome on pecans.

Truck Crop Insects: TOMATO FRUITWORM (*Heliothis zea*) was light to moderate on tomatoes and TOBACCO HORNWORM (*Protoparce sexta*) was light. VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) was light to moderate on tomato plant beds and heavy on some tomatoes in the field. COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) infestations were light to heavy on this crop. A STINK BUG which was a problem in 1956 and 1957 was extremely light during the past growing season. ONION THRIPS (*Thrips tabaci*) was light to moderate on onions. MEXICAN BEAN BEETLE (*Epilachna varivestis*) and BEAN LEAF BEETLE (*Cerotoma trifurcata*) were light to heavy on lima, pole and snap beans. Heavy infestations of STRIPED BLISTER BEETLE (*Epicauta* sp.) were noted on tomatoes in Berrien County and light to moderate infestations of CUCUMBER BEETLES (*Acalymma vittata* and *Diabrotica undecimpunctata howardi*) on cucumbers and watermelons in several southern counties. HORNWORMS (*Protoparce sexta* and *P. quinquemaculata*) were light to moderate on pimiento pepper. CABBAGE APHID (*Brevicoryne brassicae*) was moderate to heavy on cole crops while IMPORTED CABBAGEWORM (*Pieris rapae*) was light on cabbage. DIAMONDBACK MOTH (*Plutella maculipennis*) infestations were light to moderate. CABBAGE LOOPER (*Trichoplusia ni*) caused light damage to collards in localized southern areas.

Tobacco Insects: TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) was light to moderate on tobacco plant beds and mostly light in field tobacco, with some moderate to heavy infestations. Light to heavy infestations of VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) occurred on tobacco plant beds. A MOLE CRICKET was light to moderate on plant beds and on field tobacco, as was GREEN PEACH APHID (*Myzus persicae*). TOBACCO BUDWORM (*Heliothis virescens*) was light to heavy, being mostly light until late season. *Heliothis zea* infestations were heavy in late season. SOUTHERN GREEN STINK BUG (*Nezara viridula*) and BROWN STINK BUG (*Euschistus servus*) were very light compared with 1956 and 1957 infestations. TOBACCO HORNWORM (*Protoparce sexta*) infestations were light. CUTWORMS and GRASSHOPPERS were not a serious problem on tobacco. VEGETABLE WEEVIL and TOBACCO FLEA BEETLE were the two most important insect pests of tobacco in the bed. TOBACCO BUDWORM, APHIDS and TOBACCO FLEA BEETLE were the three most important insects of tobacco in the field.

Cotton Insects: BOLL WEEVIL (*Anthonomus grandis*) infestations were light to moderate in early and mid-season or until about July 1, when heavy and frequent rains were general over the State. Many growers were unable to apply controls on recommended schedule, which undoubtedly contributed to heavy infestations in late season. The 1958 fall trash examinations for hibernating boll weevils showed an average of 1,133 live weevils per acre as compared with 2,081 in 1957 and the 8-year averaged of 1,279 live weevils per acre. Infestations of BOLLWORMS (*Heliothis* spp., et al) were heavy by mid-May, before cotton had squared,and continued through the season. Egg counts went as high as 212 per 100 terminals and larval counts up to 87 per 100 terminals. This was an unusually early and heavy infestation. PALE-STRIPED FLEA BEETLE (*Systena blanda*) and THRIPS were light to moderate on cotton. COTTON APHID (*Aphis gossypii*) infestations were light to heavy, but mostly moderate. TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) and DESERT SPIDER MITE (*T. desertorum*) infestations were light to moderate. Infestations were less than those in 1956 and 1957, which were rather heavy. Infestations of CABBAGE LOOPER (*Trichoplusia ni*) were mostly light to moderate and many were beneficial since larvae began feeding on the bottom leaves where the cotton was mature. The three most important economic pests of cotton in 1958 were BOLL WEEVIL, BOLLWORMS and APHIDS.

Forest and Ornamental Insects: ELM SPANWORM (Ennomos subsignarius) infestations were heavy on northern hardwood. Large numbers of moths were observed in the Athens-Gainesville area. NANTUCKET PINE MOTH (Rhyacionia frustrana) was heavy and is now infesting slash pine as well as other pines. EASTERN TENT CATERPILLAR (Malacosoma americanum) defoliated large numbers of wild cherry and persimmon trees. BAGWORM (Thyridopteryx ephemeraeformis) was heavy on arborvitae, MIMOSA WEBWORM (Homadaula albizziae) serious on mimosa throughout the State and a CHINCH BUG (Blissus leucopterus insularis) was heavy on St. Augustine and centipedegrass. Moderate to heavy infestations of ELM LEAF BEETLE (Galerucella xanthomelaena) were observed on elms. RED-HEADED PINE SAWFLY (Neodiprion lecontei) infestations were scattered and mostly light. FALL WEBWORM (Hyphantria cunea) was heavy on pecan and hickory, with some trees being completely defoliated. BLACK TURPENTINE BEETLE (Dendroctonus terebrans) infestations were light to moderate,as were those of SOUTHERN PINE BEETLE (Dendroctonus frontalis).

Insects Affecting Man and Animals: HORN FLY (Siphona irritans) infestations were moderate. COMMON CATTLE GRUB (Hypoderma lineatum) infestations were light to moderate. DOG FLEA (Ctenocephalides canis) and CAT FLEA (Ctenocephalides felis) infestations were moderate to heavy over the State. HOUSE FLY (Musca domestica) was moderate to heavy where good sanitation and insecticidal practices were not carried out. SCREW-WORM (Callitroga hominivorax) infestations were found only in the extremely southern counties of Brooks and Camden. IMPORTED FIRE ANT (Solenopsis saevissima v. richteri) is now infesting approximately 400,000 acres in 48 counties. All known infestations have been treated in 16 counties.

Beneficial Insects: The number of HONEY BEE (Apis mellifera) colonies decreased from 217,000 in 1957 to 213,000 in 1958. Honey production per colony was 31 pounds, the same as in 1957. Most colonies went into winter with ample stores. American foulbrood continues to be the number one bee disease. Few complaints were heard from beekeepers on the losses of colonies or production from the use of agricultural chemicals.

SUMMARY OF INSECT CONDITIONS - 1958

ARKANSAS

Reported by W. P. Boyer

Highlights: The year was near average in total rainfall with some areas reporting slightly above normal amounts. Seasonal fluctuations were typical, with some extremes. All of the State had excessive spring rains which delayed planting. A change in weather resulted in the bulk of spring-planted crops being planted in a short period of time. Northeast Arkansas suffered a six-weeks drought following the planting season. Summer rainfall was sufficient to excessive. The fall season was dry and very favorable to crop maturity and harvest. Temperatures were slightly below normal throughout the year. Cotton insects, over all, were not as serious in 1958 as they were in 1957. BOLL WEEVILS were much lighter, while BOLLWORMS and MITES were more serious. PINK BOLLWORM moved into the delta of eastern Arkansas. CORN BORERS, European and Southwestern, continued their advance into new areas. CHINCH BUGS in hibernation are somewhat higher in number than a year ago. GRASSHOPPER counts in the summer of 1958 were lower than in 1957. FALL ARMYWORM was much lighter in 1958 than it was in 1957. Soybean and alfalfa insect infestations were light. Increased problems arose from insect infestations in grain sorghum. Additional acreage was treated for IMPORTED FIRE ANT. There were no outstanding changes in forestry insects.

Cereal and Forage Insects: SPOTTED ALFALFA APHID (Therioaphis maculata) populations remained low during 1958. Occasional light infestations occurred but none were of damaging proportions. PEA APHID (Macrosiphum pisi) infestations were comparable with those in 1957. Numbers built up in cool seasons but only minor damage occurred. THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) infestations were, in general, lighter than in 1957. BEAN LEAF BEETLE (Cerotoma trifurcata) infestations were rather light, with few, if any, of economic importance. GARDEN WEBWORM (Loxostege similalis) infestations on soybeans in early 1958 were heavier than they have been in many years. The occurrence of a second generation in damaging numbers was unusual. The annual CHINCH BUG (Blissus leucopterus) survey showed more bugs in hibernation this winter than a year ago. (see table).

Chinch Bug Infestation Classification

	Non-Economic	Light	Moderate	Severe	Very Severe
No. of Counties (1958)	8	2	1	6	0
No. of Counties (1957)	11	1	2	3	0

GREENBUG (Toxoptera graminum) infestations were heavier and more widespread in the spring of 1958 than in many years. Some oat crops were damaged. Surveys in the fall of 1958 showed that greenbug successfully oversummered. Further checks in late December showed survival at 0°F. in the northwestern area. ARMYWORM (Pseudaletia unipuncta) infestations in oats were quite common. Infestations required treatments in many fields in the southeastern area and were approximately two weeks later than normal. RICE STINK BUG (Oebalus pugnax) was a minor pest of oats. GRASSHOPPERS caused very little damage in 1958. Economic infestations occurred in only a few isolated spots in the extreme northwestern area. SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) spread to 20 previously uninfested counties. All counties in the State are now infested. Early-planted corn was practically free of infestation whereas late corn suffered severe infestations. EUROPEAN CORN BORER (Pyrausta nubilalis) continued its advance southwestward across the State. Eighteen new counties became infested. The pest has now been found in all but 6 of the State's 75 counties. SUGARCANE BEETLE (Euetheola rugiceps) was not a serious pest of corn as it was in 1956. CORN LEAF APHID (Rhopalosiphum maidis) infestations were common throughout 1958. Little apparent injury occurred, however. Sorghum insects continued to increase in importance. SORGHUM WEBWORM (Celama sorghiella) and SORGHUM MIDGE (Contarinia sorghicola) were the two principal pests. Of next importance were CORN EARWORM (Heliothis zea) and FALL ARMYWORM (Laphygma frugiperda). Economic loss was greatest as a result of SORGHUM MIDGE infestations though the problem was more localized and more severe in late-planted sorghum.

Rice insects of most importance in the field were RICE WATER WEEVIL (Lissorhoptrus oryzophilus), GRAPE COLASPIS (Colaspis sp.) and RICE STINK BUG. Control measures are well established for RICE WATER WEEVIL and little economic loss occurred. Larvae of GRAPE COLASPIS have become a problem, since they attack the roots of seedling rice and reduce stands. Lespedeza appears to be one of the most attractive hosts to ovipositing females in the fall of the year. The larvae overwinter in the ground and become active feeders in the spring prior to pupation. Rotation, to avoid rice following lespedeza, along with chemical soil and seed treatment are being practiced. RICE STINK BUG has not caused serious losses but is causing more concern. Limited surveys have been made for LEAFHOPPERS on rice to determine if Sogata orizicola is present in the State. These surveys were all negative in 1958. CHINCH BUG infestations in rice were light and caused no economic losses. Although soybean insects have not been serious, surveys for possible damage by various pests will be increased in the future due to the increased acreage and importance of the crop. The acreage of soybeans climbed to around 2,000,000 acres, which is approximately double the acreage of cotton in the State. Cotton ranks second in total row crop acreage.

Cotton Insects: The following comments pertaining to cotton insects are based in part on a summary of weekly checks and reports by 69 cotton insect scouts who scouted close to 100,000 acres of cotton from June 10 to September 3. The data in the tables are all taken from scout reports. THRIPS infestations were light and of little significance. COTTON APHID (*Aphis gossypii*) was heavier in early season, but lighter in late season, when compared with 1957 (See Table 1.). Beneficial insects kept aphids in check in most instances. Late season boll weevil and bollworm treatments reduced beneficial insects, resulting in the necessity for aphicides to be included in the treatments.

Table 1. Percentage of fields infested with aphids in 17 counties in 1958 and 23 counties in 1957

	June		July					August				Sept.
	18	25	2	9	16	23	30	6	13	20	27	3
1958	67	72	63	39	27	22	27	26	30	30	47	53
1957	20	17	11	12	17	13	35	47	61	59	64	59

COTTON FLEAHOPPER (*Psallus seriatus*) infestations were of minor importance in 1958. COTTON BOLLWORMS (*Heliothis* spp., et al.) infestations were much heavier in 1958. Infestations occurred early and persisted throughout the season. Beneficial insects were very important in preventing larvae from "breaking through" to harmful size until treatments began (See Table 3.). BOLL WEEVIL (*Anthonomus grandis*) infestations were much lighter in the delta section of eastern Arkansas in 1958 (See Table 2.). In the hill sections and the upper Arkansas River Valley, infestations were much heavier in 1958. A fairly cold 1957-58 winter probably reduced hibernating weevils in the delta, while winter survival was much greater in the hills and along the upper Arkansas River Valley due to more favorable hibernating areas. Late, uniform planting of the crop followed by a dry period resulted in wide, uniform dispersal and considerable mortality of emerging overwintered weevils. Resistance to the chlorinated hydrocarbons developed in several new areas.

Table 2. Boll weevil infestations based on percent punctured squares in 17 counties in 1958 and 23 counties in 1957. Rainfall in inches.

	June		July					August				Sept.	
	18	25	2	9	16	23	30	6	13	20	27	3	10
1958													
Infestation	-	-	-	2.2	2.7	3.7	6.5	8.7	10.8	13.9	17.4	22.4	-
Rainfall*	1.47	0.66	0.84	2.55	1.17	0.87	1.5	0.44	0.57	1.10	0.57	0.29	-
1957													
Infestation	6.1	6.9	7.1	7.1	9.2	12.4	17.2	20.9	26.8	29.4	26.8	25.5	26.8
Rainfall*	2.4	0.39	0.14	0.98	0.09	1.2	0.6	0.06	0.35	0.90	0.03	1.51	0.0

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*Rainfall data are based on the average of 27 stations in the same area.

Table 3. Percentage of cotton fields infested with boll weevils and bollworms in 17 counties in 1958 and 23 counties in 1957

	June			July					August				Sept.	
	10	18	25	2	9	16	23	30	6	13	20	27	3	10
						Boll Weevil								
1958		4	5	7	33	45	57	71	78	81	89	93	94	
1957		18	26	43	59	67	78	81	89	93	98	100	98	
						Bollworms								
1958		37	27	29	39	35	44	60	75	82	73	66	61	
1957		8	16	19	21	28	37	42	44	60	55	36	46	

SPIDER MITE infestations were much heavier in some areas in 1958 (See Table 4.). The percentage of fields infested was comparable to 1956 though individual infestations were heavier, more persistent and caused more concern in 1958. Infestations were unusually heavy and persistent considering the amount of rainfall. This was apparently due, in part, to the early dry period in northeast Arkansas and to unnecessary early treatments in other areas.

Table 4. Percentage of fields infested with spider mites in 17 counties in 1958 and 23 counties in 1957

	June		July					August				Sept.
	18	25	2	9	16	23	30	6	13	20	27	3
1958	0.4	1.0	1.2	1.1	2.3	8.0	14	25	26	33	40	47
1957	0.12	0	0	0	0.2	0.2	1.0	2.0	5	8	15	25

CABBAGE LOOPER (Trichoplusia ni) infestations were somewhat heavier in 1958 but were of little, if any, economic importance. WHITEFLY (Trialeurodes sp.) infestations were more common than in past years. A few infestations reached minor economic importance. A PLANT BUG (Neurocolpus nubilus) was observed in a few fields in 1958. Light infestations appeared to be more common in the northeast section of the State. A GARDEN WEBWORM (Loxostege similalis) outbreak on small cotton covered nearly all areas of east Arkansas, several thousand acres requiring treatments.

Forest Insects: Through a cooperative survey program, forest insects are checked closely and conditions reported once per month. This is a cooperative project of the Department of Entomology, University of Arkansas; Extension Entomologist; Arkansas Forestry Commission and State, Federal and commercial foresters. The principal forest pests reported on are NANTUCKET PINE MOTH (Rhyacionia frustrana), SAWFLIES (Neodiprion spp.), PINE BARK WEEVILS, BLACK TURPENTINE BEETLE (Dendroctonus terebrans) and IPS BEETLES. Checks are made for SOUTHERN PINE BEETLE (Dentroctonus frontalis) which has not been found in Arkansas. Activity of Nantucket pine moth, sawflies, pine bark weevils, Ips beetles and black turpentine beetle has been very similar to past years. Sporadic infestations have appeared, but there have been no serious outbreaks. Local infestations of ELM LEAF BEETLE (Galerucella xanthomelaena) caused serious defoliation of Chinese elms in some areas. MIMOSA WEBWORM (Homadaula albizziae) caused severe defoliation in the southwestern area.

Livestock Pests: The annual CATTLE GRUB (Hypoderma spp.) survey showed an average of 2.24 grubs per head compared with the 1957 average which was 2.27 and the 1956 average of 8.48 grubs per head. The survey showed zero to extremely low numbers in the flat delta areas of east Arkansas.

Beneficial Insects: The role of beneficial insects is very important and is becoming more recognized, especially in cotton production. An early aphid outbreak on cotton was brought under control by LADY BEETLES with the help of PARASITIC WASPS. Other important PREDATORS were Orius insidiosus, Geocoris punctipes, Chrysopa spp. and Nabis spp.

Miscellaneous Insects: IMPORTED FIRE ANT (Solenopsis saevissima richteri) - A 5,000 acre tract in Union County was treated by air in early 1958. Individual mound treatments have been used for isolated mounds found in scattered areas.

Outlook for 1959: BOLL WEEVIL infestations should not be as severe in 1959 unless conditions are extremely favorable next summer. The past year was considered a fairly light boll weevil year, especially when compared with 1955 and 1957, two very heavy years. Low temperatures this winter should reduce the hibernating weevils to a fairly low number, especially in eastern Arkansas. Winter sampling of trash has not been completed. Sampling to date indicates low hibernating numbers of weevils. GRASSHOPPERS should not be a problem except in localized areas. CHINCH BUG may be more numerous yet the cold winter should reduce numbers. No serious outbreaks are expected. Little trouble has been experienced with soybeans, but they will be watched carefully. Rice will continue to be checked for pests. Special attention will be given to the possible presence of the vector of hoja blanca virus. More attention will be given to insects of sorghum. The cotton insect scouting program and the forestry insect survey will be continued.

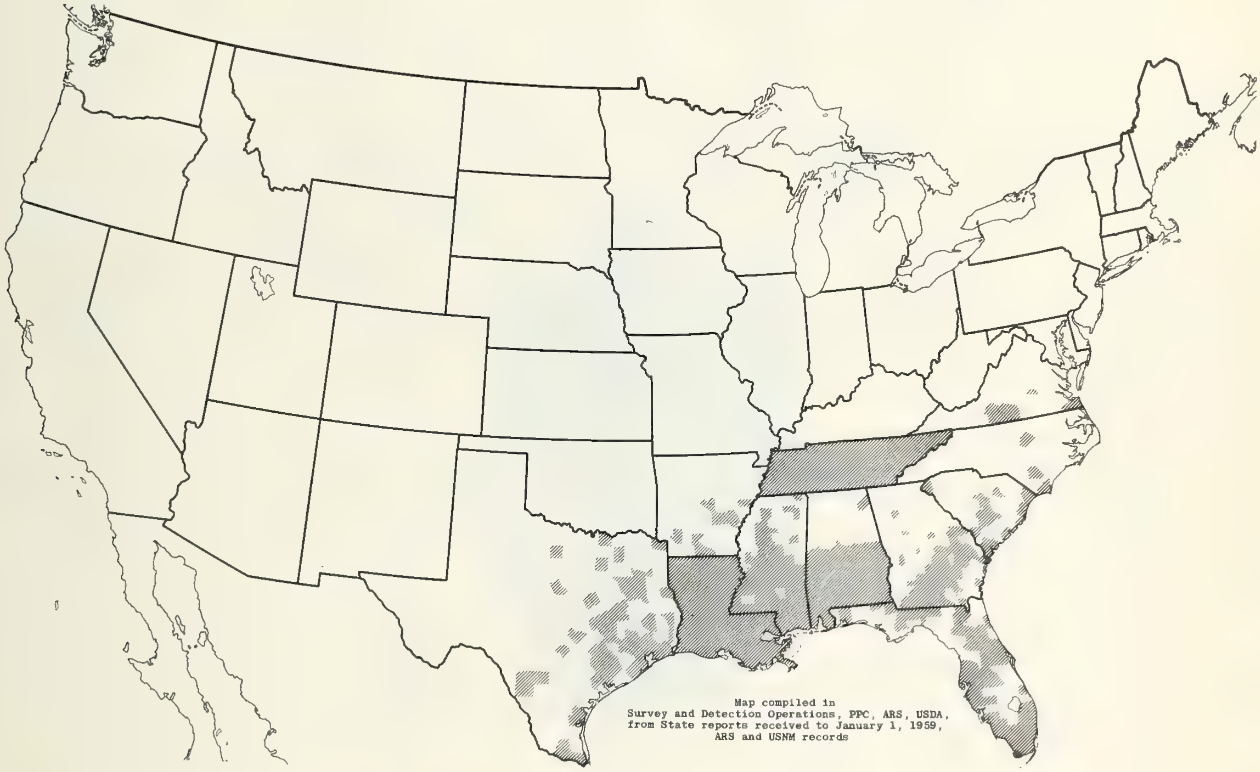
SOUTHERN GREEN STINK BUG (*Nezara virdula*(L.))

Economic Importance: This stink bug is one of the more important insect pests in several southern States. It often becomes serious on cultivated plants, the nymphs and adults attacking all parts of the host plants, but preferably the young tender growth and fruit. Excessive injury causes loss of fruit or plant mortality. Attack on young fruit produces severe distortion with hard callouses being formed around the feeding punctures. *Nezara viridula*, described by Linnaeus in 1775, is of foreign origin and was probably introduced into the United States and the West Indies many years ago.

Distribution: Occurs in southern Europe, Africa, southern Asia, Australia and the Pacific Islands, Central and South America, West Indies and in the southern United States (see map).

Hosts: This insect has a wide host range. Among its hosts are cucurbits, crucifers, legumes, *Solanum*, sweetpotato, sunflower, citrus, corn, tobacco, cotton, rice, pecan, hackberry, mulberry, peaches and pepper.

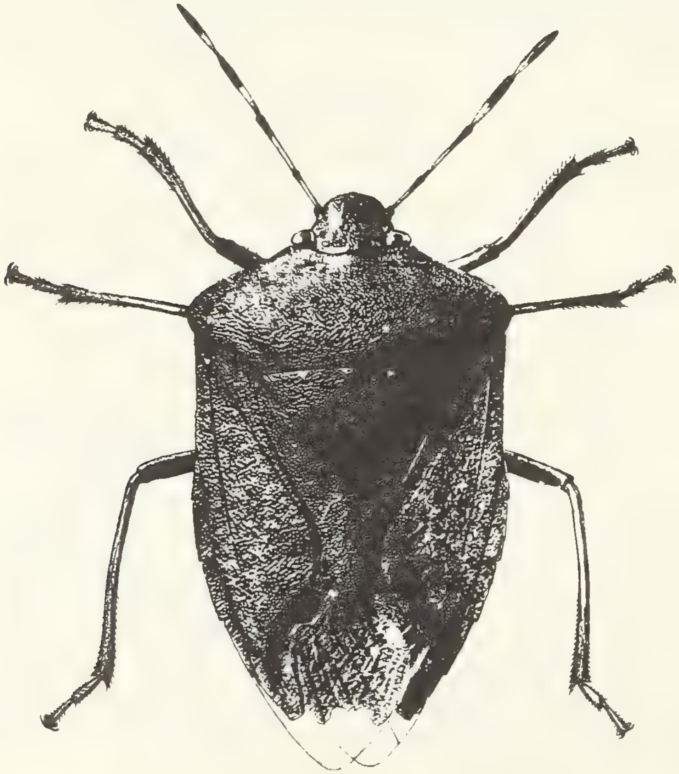
DISTRIBUTION OF SOUTHERN GREEN STINK BUG *(NEZARA VIRIDULA)*



Map compiled in
Survey and Detection Operations, PPC, ARS, USDA,
from State reports received to January 1, 1959,
ARS and USNM records

Life History and Habits: About the middle of March hibernating adults appear and mating begins almost immediately. Females deposit eggs about 3 to 5 weeks after becoming an adult. Eggs are deposited about mid-April, in regular rows in hexagonal clusters and are firmly glued together on the under side of the leaves. Hatching occurs in approximately 6 days. There are five nymphal instars, each with distinct color patterns and characteristics. There are 4 generations annually. Adults from the last generation seek hibernating quarters in any secluded place that offers protection. However, a few may be found during mild periods throughout the winter.

Description: The egg is cylindrical, rounded at the lower end and flattened on top, about 30 chorial processes on the cap, 1.24 mm. long and 0.85 mm. wide. Eggs when first deposited, cream-colored, later salmon-colored and, just before hatching, the crimson markings of enclosed nymphs are visible. Nymphs have marked variation in coloration from day to day and instar to instar, the color patterns and characteristics of each identify the instar. The adult is large, light green and shield-shaped. The average size about 12 mm. long and 8 mm. wide. The female is usually a little larger than the male. The antennae are 4-segmented, legs and wings well-developed and the rostrum 4-jointed. There is a close similarity of N. viridula to Acrosternum hilare, the former being distinguished by the longer head, concolorous abdominal margins and short truncated osteolar canal. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U. S. National Museum) CEIR 9(11) 3-13-59.



Adult of Southern Green Stink Bug (Nezara viridula L.)

USDA Photograph

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